

European Patent Office
International Preliminary Examination Authority
PB 5818 Patentlaan 2
2280 HV RIJSWIJK
THE NETHERLANDS

Our ref: 11343 P5WO/KC

9 September 2005

BY COURIER

Dear Sirs

**Re: PCT Patent Application GB2004/004637
Reckitt Benckiser (Australia) Pty Limited**

In connection with the above application we hereby request International Preliminary Examination on the basis of the claims as originally filed and replacement page 24 which is filed herewith. A PCT demand form is enclosed together with the fee sheet.

We believe that the present application is fully entitled to claim priority from GB 0326521.2 dated 14 November 2003, therefore DI is not relevant and has therefore not been considered.

In connection with the Examiner's Statement in the written opinion that

"The application (Table 5) contains a summary of some data about non-volatile and volatile pyrethroids. Bifenthrin is clearly the most active. So one skilled in the art would have selected it.....".

We would like to refer the Examiner to replacement page 24 and the enclosed pages from The Pesticide Manual. As can be seen from the enclosed copy of the relevant entries in The Pesticide Manual for each of the actives referenced in Table 5, only the physical data (namely, the vapour pressure, melting point, boiling point and molecular weight) is obtained from The Pesticide Manual.

The % mortality data was NOT sourced from The Pesticide Manual. It was generated by the inventors. We further refer the Examiner to Table 2, where it can be seen that the concentrations of each of the actives and the mortality data are the same as that reproduced in Table 5. Note also the inclusion of "Blank Coil" and "Untreated Control" in both Table 2 and Table 5. We

therefore submit that the person skilled in the Art would only know about the activity of bifenthrin after reading the disclosure in the present application.

D2 discloses a number of non-volatile pyrethroids namely cypermethrin, deltamethrin and permethrin, but bifenthrin is not disclosed. We believe that bifenthrin is not disclosed because it was known to decompose at $>170^{\circ}\text{C}$. In this regard, a consideration of the Table 5 data shows that none of cypermethrin, deltamethrin and permethrin are subject to decomposition. In any event it is quite clear that bifenthrin would not have been selected on the basis of known superior activity because the inventors of D2 were not aware of this property

Referring to D3, the Examiner has stated that bifenthrin would have been selected by the person skilled in the art because it "is clearly the most active". As pointed out above, this finding of activity is that of the present inventors. So bifenthrin would not have been selected for that reason. The Examiner further states that "... one skilled in the art would have selected it, unless a major prejudice would have had to be overcome." This prejudice is said to be overcome unambiguously in D3. However, it is quite clear from D3 column 6 line 9 *et seq* that bifenthrin must be used in combination with the pyrethroid, the subject of D3 (see column 1 lines 30-45). This means that the pyrethroid, the subject of D3 and bifenthrin together are used in an insecticidally effective amount. There is no disclosure, teaching or suggestion that bifenthrin may be used alone in an insecticidally effective amount in a combustible coil or stick as claimed in the present invention.

Referring to D4, bifenthrin would have been selected by the person skilled in the art because it "is clearly the most active". As pointed out above, this finding of activity is that of the present inventors. So bifenthrin would not have been selected for that reason. The Examiner further states that "... one skilled in the art would have selected it, unless a major prejudice would have had to be overcome." This prejudice is said to be overcome unambiguously in D4. Indeed D4 discloses the use of bifenthrin in a smoke generating composition, generically on page 7 line 6, example 11 on page 12 and example 13 on page 13.

However, it should be noted that firstly, the concentration of bifenthrin in example 11 is 1.34% and in example 13 is 4%. By contrast, the present invention uses no more than 0.6%. Secondly, the rate of emanation or release rate of bifenthrin from example 11 may be calculated and is 2352 mg/hr and from example 13 it is 7056 mg/hr. By contrast the release rate of the present invention is no more than 12 mg/hr. Thirdly, D4 requires a substantially higher level of oxidizing agent namely 5 to 30% by weight (see page 5 lines 25-26). By contrast, the present invention requires 0-1 %.

From these 3 differences, it is reasonable to conclude that the D4 inventors were not aware of the activity of bifenthrin in combustible coils or sticks. Had they been aware, considerably lower concentrations of bifenthrin would have been taught. This is reinforced by the unambiguous disclosure of the use of

at least 5 times the level of oxidizing agent as that of the present invention. It then follows that the release rates of D4 are enormous and simply unacceptable to meet the release rate required by the present invention.

For the reasons identified above, we believe that the claims as currently on file are both novel and inventive in view of the documents cited by the Examiner. We therefore look forward to a favourable International Preliminary Examination Report.

If the Examiner has any residual questions we ask that, in the first instance, he contact the undersigned representative by email or telephone.

Yours faithfully

Cawdell, Karen Teresa
Authorised Representative

Reckitt Benckiser plc

email: karen.cawdell@reckittbenckiser.com

Table 5 - Comparison of physical properties of bifenthrin with other pyrethroids

(Source of data relating to vapour pressure, melting point, boiling point and molecular weight: The Pesticide Manual, A World Compendium. 12th Ed. Editor C.D.S. Tomlin. British Crop Protection Council. The data relating to mortality is experimental data prepared by the inventors.)

| | Vapour Pressure (mPa) | Melting Point (°C) | Boiling Point (°C) | Molecular Weight | % mortality of Ae. aegypti (15 mins exposure) |
|----------------------|-----------------------|--------------------|--------------------|------------------|---|
| 0.25% d-Allethrin | 0.16 (21°C) | - | 281.5 | 302.4 | 7 |
| 0.05% Bifenthrin | 0.024 (25°C) | 68-70.6 | Decomp>170 | 422.9 | 94 |
| 0.228% d-Phenothrin | 0.019 (21.4°C) | - | >290 | 350.5 | 24 |
| 0.035% Imiprothrin | 0.0018 (25°C) | - | - | 318.4 | 7 |
| 0.705% Permethrin | 0.0025 (20°C) | 34-35 | 200 | 391.3 | 55 |
| 0.3% Cypermethrin | 0.0002 (20°C) | 61-83 | - | 416.3 | 56 |
| 0.056% Bioresmethrin | 18.6 (25°C) | 32 | Decomp>180 | 338.4 | 23 |
| 0.07% Deltamethrin | 0.0000124 (25°C) | 100-102 | - | 505.2 | 12 |
| Blank coil | | | | | 6 |
| Untreated control | | | | | 10 |

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It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

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